

# Determining Pasture Rental Rates

**Kevin Sedivec**  
Extension Rangeland  
Management Specialist

**H**istorically, North Dakota pastureland has been rented by the acre, and the leasee allowed to graze as many animals as possible for the entire grazing year. This method of renting pasture by the acre is simple, but has potential for economic and conservation errors. A more appropriate method to leasing out or renting pasture is pricing based on animal unit months (AUMs).

Pasture rental rate using the acre method will not be the same rate as the AUM method; the methods are not interchangeable. If a western North Dakota landowner rents out a pasture at \$12 per AUM, the per acre rate will appear much lower at about \$8 per acre. However, the \$8 rate per acre may cost the tenant more than the \$12 rate per AUM if carrying capacity is low (see examples showing both methods of tabulation).

Leasing pasture by the acre puts a set value on the land for the entire grazing season and usually does not specify animal numbers. When leasing out pasture by the AUM, the landowner sets the rental rate for the livestock by the month. With this method, the land-owner usually controls the carrying capacity by specifying how many animals can use the pasture over a period of months.

Although the recommended carrying capacity of a pasture is not needed to calculate rental value, it is highly recommended that all landowners know the carrying capacity of their land, whether renting by the AUM or acre. By knowing the carrying capacity for each pasture unit, a landowner can determine if a pasture has sufficient forage (AUMs) to carry the tenants livestock numbers (AU) over the planned grazing season months (M). Simply stated, does AUMs of forage available = AUMs of forage needed? See your local extension agent or Natural Resource Conservation Service (formerly the SCS) office for more information on determining your pastureland carrying capacity.

The purpose of this publication is to help landowners and tenants determine and compare rental rates for pasture by the acre and AUM, and help develop contracts that maintain landowner control of his or her lands. Although this publication should be helpful in determining rental rates and showing the conversions between different rental rate methods, rate may still vary with water, pasture type, developments, availability and access to land, and fencing maintenance needs.

**ALWAYS HAVE A WRITTEN CONTRACT, EVEN A SIMPLE SHEET OF PAPER WITH THE RENTAL RATES, GRAZING PERIOD, AND LIVESTOCK NUMBERS.**



**NDSU**  
**Extension Service**  
North Dakota State University

Fargo, North Dakota 58105

MAY 1995

Revised and reprinted May 1999



## Renting by the Acre

Renting out or leasing pasture by the acre is the simplest of the two methods. The landowner determines the rental rate within the constraints of the going market rate in the area for pasture of similar forage productivity and improvements.

The North Dakota Agricultural Statistics Service conducts an annual survey of pasture rental rates for each county and area of the state. The 1994 rental rates ranged from \$6.30 per acre in Williams county to \$14.90 per acre in Richland county. This large range in rental rates occurs due to carrying capacity potential or forage production, with eastern North Dakota's pastureland having a higher per acre forage production than western North Dakota.

Landowners can also determine their rental value per acre by using a desired rate of return from their estimated pastureland value. A typical rate of return is 5 to 6 percent after real estate taxes. The real estate taxes in North Dakota are about 1 percent of the land value. A landowner can estimate the rental value by multiplying the land value by 6 to 7 percent (percent typical rate of return plus percent real estate taxes).

### Formula: Determining Rental Rate Using the Acre Method

Pasture Land Value x 6 to 7 percent = Rental Value

### Example #1: determining rental rate by acre

- 1,000 acre pasture in western North Dakota (Slope County), valued at \$130.00/acre in 1994.
- Multiplier of 6 to 7 percent.

Formula: \$130.00 x 6 percent = \$7.80  
 \$130.00 x 7 percent = \$9.10

### Calculated rental value = \$7.80 to 9.10 per acre.

- Total rental price for the 1,000 acres at \$7.80 - 9.10/acre is \$7,800 - 9,100.
- North Dakota Agricultural Statistic Service's 1994 average for Slope county was \$8.80.

## Renting by the Animal Unit Month (AUM)

Renting by the animal unit month (AUM) is also a simple method; however, calculations are more detailed due to conversion of livestock numbers to animal units (AU). This method involves using a competitive rental rate per AUM. The rental rate per month for a given herd is determined by multiplying the rental rate per AUM by the number of animal units (AU) grazed (see animal unit equivalent Table 1 for values). Total annual pasture rent is determined by multiplying the per month rate by the number of months the pasture is grazed.

### Formula: Determining Pasture Rent Using the AUM Method

Number of Animal Units (AU) x AUM price = Overall Rental Value for AUs for one month.

Then take Overall Rental Value for one month x Months grazed = Total Payment

Table 1. Animal Unit (AU) equivalent for each class of livestock and livestock types.

Livestock Inventory	AU value	Number/AU
<b>Cattle:</b>		
1,000 lb. beef cow/calf pair	1.00	1.00
1,100 lb. beef cow/calf pair	1.07	0.94
1,200 lb. beef cow/calf pair	1.13	0.88
1,300 lb. beef cow/calf pair	1.19	0.84
1,400 lb. beef cow/calf pair	1.25	0.80
Calves by themselves over 3 months	0.30	3.33
Weaned calves to yearling	0.60	1.67
Yearling cattle (600-800 lb)	0.75	1.33
2-year old dry cattle (800-1000 lb)	0.85	1.18
Mature bulls	1.30	0.77
Dairy cows	1.30	0.77
<b>Sheep:</b>		
Mature ewes with lambs	0.20	5.00
Weaned lambs to yearlings	0.12	8.33
Mature Rams	0.25	4.00
<b>Goats:</b>		
Mature doe with kids	0.17	5.88
Weaned kid to yearling	0.10	10.00
Mature Buck	0.22	4.55
<b>Mature Horse</b>	1.50	0.67

Average rental rates per AUM range from \$10 to \$18 in North Dakota in 1994. These values will vary based on supply and demand of pasture in your area, quality of rangeland, fence and water developments, and amount of land an animal has to cover to meet its daily intake requirements. The higher the forage quality, the lower the acreage of land needed to maintain an animal unit, and a higher quality of water and fence will demand a higher AUM rental rate.

### Example #2: determining rental rate by AUM method

- 1,000 acre pasture in western North Dakota (Slope County).
- Grazing 105 cow/calf pairs or 105 animal units (AU).  
Note: 1.0 animal unit = one 1,000 lb cow/calf pair (Table 1).
- Total of 105 AUMs for 1 month (105 AU x 1 Month)
- Plan to graze June 1 through November 15 (5.5 months).
- Total AUMs of grazing (105 AU x 5.5 M) = 577.5 AUMs.

Formula:

$$105 \text{ animal units (AU)} \times \$12/\text{AUM} \times 5.5 \text{ months} = \$6,930.$$

$$105 \text{ animal units (AU)} \times \$14/\text{AUM} \times 5.5 \text{ months} = \$8,085.$$

$$105 \text{ animal units (AU)} \times \$16/\text{AUM} \times 5.5 \text{ months} = \$9,240.$$

**Calculated rental value for 1 month is 105 AUMs x \$12 to 16/AUM = \$1,260 to 1,680 per month.**

**Calculated rental value for 5.5 months is 577.5 AUMs x \$12 to 16/AUM = \$6,930 to 9,240 per grazing season scheduled.**

- Total rental price for the 1,000 acres was \$7,800 to 9,100 in previous example using the per acre method.

The landowner will need to convert the livestock class or type to animal units (AU) (Table 1) when calculating a rental cost using AUMs. This will allow easy calculation of the overall rental fee. See examples for converting livestock classes and types to animal units (AU) and determining herd rental rates by the AUM method.

### Example #3: calculating rental cost using different livestock classes charging \$13.50 per AUM.

If grazing:

$$50 - 1,000 \text{ lb cow/calf pairs: } 50 \text{ cow/calf pair} \times \underline{1.0 \text{ AU}}^a = 50 \text{ AU.} \\ 50.0 \text{ AU} \times \$13.50/\text{AUM} = \$675.00 \text{ per month.}$$

$$50 - 800 \text{ lb yearling heifers: } 50 \text{ heifers} \times \underline{0.75 \text{ AU}} = 37.5 \text{ AU.} \\ 37.5 \text{ AU} \times \$13.50/\text{AUM} = \$506.25 \text{ per month}$$

$$50 - \text{mature ewes with lambs: } 50 \text{ sheep} \times \underline{0.20 \text{ AU}} = 10 \text{ AU.} \\ 10.0 \text{ AU} \times \$13.50/\text{AUM} = \$135.00 \text{ per month}$$

$$50 - 1,200 \text{ lb cow/calf pairs: } 50 \text{ cow/calf pair} \times \underline{1.13 \text{ AU}} = 56.5 \text{ AU.} \\ 56.5 \text{ AU} \times \$13.50/\text{AUM} = \$762.75 \text{ per month}$$

<sup>a</sup>The value underlined is taken from Table 1 for animal unit (AU) equivalent.

## Converting Rental Methods

Many landowners who rent out pasture by the acre can easily convert rates to the AUM method. *If the landowner knows the pasture size, the number and type of livestock, and the total rental payment, they can easily convert the rental cost from acres to AUM or AUMs to acres.* The following examples provide an explanation of the formulas to convert the two methods.

### Formula: Converting Renting by the Acre to AUM

Total rental payment divided by (# of animal units x months grazed or AUMs) = Rental price per AUM

### Example #4: converting the acre to AUM rental methods

- A Bowman County, North Dakota landowner charges \$9.50 per acre, 1,000 acres in the pasture unit:  
Total payment (1,000 acres x \$9.50) = **\$9,500.**

- Tenant grazes 100 - 1,100 lb cow/calf pairs for 5 months. Total animal units are 100 x 1.07 AU = 107 AU (Note: 1,100 lb cow/calf pair has an animal unit equivalent of 1.07 AU). The livestock grazed for 5 months, so AUMs is 107 AU x 5 Months = **535 AUMs.**
- Divide rental payment (\$9,500) by (the number of animal units grazed (107 AU) x months grazed (5 m) or 535 AUMs). The rental payment by the AUM is \$9,500 divided by 535 AUMs = **\$17.75/AUM.**

In this situation, the tenant is paying \$9.50 per acre or \$17.75 per AUM to rent this pasture unit. Based on this example, the tenant is probably paying too much per acre since the AUM method price is well above the average AUM price of \$12 to \$14.

### Formula: Converting Renting by the AUM to Acre

Rental price per AUM x (# of animal units x months grazed or AUMs) divided by acres grazed = Rental price per acre

### Example #5: converting renting by the AUM to acres

- A Bowman County, North Dakota landowner charges **\$14.50 per AUM**, 1,000 acres in the pasture unit, grazes 100 - 1,100 lb cow/calf pairs for 5 months. Total AUMs is **535 AUMs** (see previous example for determining).
- Total payment is rental charge by the AUM (\$14.50) x total AUMs. The total rental payment would be \$14.50/AUM x 535 AUMs = **\$7,757.50**
- To convert rental payment on a per acre basis, divide total payment (\$7,757.50) by pasture acreage (1,000 acres). The per acre rental charge would \$7,757.50 divided by 1,000 acres = **\$7.76**

In this situation, the tenant is paying \$14.50 per AUM or \$7.76 per acre to rent this pasture unit. Based on this example, the tenant and landowner are using a fair per acre rental rate relative to the AUM market price.

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names.

This publication may be copied for noncommercial, educational purposes in its entirety with no changes. Requests to use any portion of the document (including text, graphics or photos) should be sent to [permission@ndsuext.nodak.edu](mailto:permission@ndsuext.nodak.edu). Include exactly what is requested for use and how it will be used.

For more information on this and other topics, see: **[www.ag.ndsu.edu](http://www.ag.ndsu.edu)**